The Institution of Engineers, Australia: Sydney Division
Engineering Heritage Committee
ORAL HISTORY PROGRAM

INTERVIEWEE: **Brian Pearson** TAPE NUMBERS: **IEA SYD:FH45,46,47,48**

INTERVIEWER: **Frank HEIMANS**

DATE: 2 July 1999 NUMBER OF TAPES: **4**

RESTRICTIONS ON USE: Nil

LOG PREPARATION: This log was prepared using a Sanyo Memoscriber TRC 9100 Transcribing System

INTERVIEW TAPE LOG

Tape: IEA SYD: FH45 Side A

TAPE COUNTER	SUBJECT	NAMES & KEYWORDS
011	Gives his name an place of birth: Brian John Pearson , born Epping, January 1927. One brother and one sister. Father an engineer who studied in Adelaide and moved to Sydney to find work. He married and worked for the Railways. Lost his job during the Depression and tough times followed for about five years. Had to leave the family home at Epping and moved to Enmore to run a general store. Father later worked for the Sydney Water Board until retirement as Chief Designing Engineer. Says that Pearsons are a short, fat and stubborn family. Father was a kind man and interested in horse racing - partly based on a family trait of mathematical inclination. Had a betting system as an amusement. Brian Pearson inherited his father's large stamp collection.	Born January 1927 Family Adelaide Sydney Epping Sydney Water Board

064	Mother from a poor family and though she topped the Leaving certificate in two subjects and gained university entrance, could not attend, as parents too poor. She worked for several years at the Sydney Observatory. Pearson family moved eventually to a comfortable life at Ashfield, then moved back to Epping and later to a newly built home at Eastwood.	Sydney Observatory Ashfield Epping Eastwood
100	Attended primary school at Lewisham and High school at Ashfield. Leaving Certificate results entitled him to an 'exhibition' (ie free education) at Sydney University. Had gained the highest possible pass in the Intermediate Certificate and gained honours in mathematics and 'A ' passes in other subjects in the Leaving Certificate.	Lewisham Primary School Sydney University Education Results
122	Says his father wanted him to do medicine but he preferred engineering. Interest in engineering stemmed from his father's background and a shared methodical approach and interest in figures. Interest in bridges prompted during his childhood in Stanmore. Local man had timber models set up over the back fence including bridges and trains which intrigued young Pearson and he made some of his own aeroplane models. His father organised for him to do technical drawing at school on Saturday mornings and got an 'A' pass.	Preference to study engineering Stanmore
188	Began a four year civil engineering course at Sydney University in 1944. Did not graduate with honours but was one of only four or five who completed without failing a subject.	Sydney University
209	Remembers lecturer Professor William Miller - a dour Scotsman – the faculty's only professor of civil engineering. Was the finest lecturer Pearson experienced. Did not study under Roderick, but came across him later.	Lecturers at Sydney University: Professor William Miller Professor Roderick, Sydney University

237	Studied with Bruce Loder who became Commissioner of the Department of Main Roads and Bruce Sinclair who started the consulting firm Sinclair, Knight and Partners. Says several students rose to senior positions in both private and government organisations.	Fellow students at Sydney University: Bruce Loder Bruce Sinclair Sinclair, Knight & Partners
247	Says students received a high standard of education from the handful of dedicated lecturers. It was proposed that the course be finished more quickly by holding classes on Saturday mornings and at night enabling completion in three instead of four years so students could join the war effort. However, the war came rapidly to an end and the plan was abandoned.	Standard of teaching during the 1940s Class arrangements
267	Enjoyed studying structural analysis. Also studied subjects on the fringe of civil engineering including one or two years of architecture. Studied manual workshop subjects at the Tech. at Broadway – now the University of Technology. Hands on work involved using lathes and other workshop equipment.	University subjects Sydney Technical College
298	Completed studies in late 1947 and awarded a degree of Civil Engineering in 1948. Joined the Department of Main Roads as a trainee engineer, under surveillance for a couple of months until confirmation of appointment. About a quarter of the class joined the DMR. At that time openings for civil engineers were mainly with government authorities. After a year, construction money became plentiful as governments built dams and roads.	Completed studies Joined the Department of Main Roads
333	Most trainees were appointed to the bridge section which at the time was the starting point for engineers. Learned bridge design for first 18 months. Had technical knowledge from university but no knowledge of how to put a bridge together. A couple of young engineers were sent to field positions as assistants. His appointment was confirmed on 5 February 1948 at a salary of £8/15/7 per week. Going rate for a young engineer was £400 per year, a rate that had not changed since the 1930s.	DMR bridge section Appointment Salary

364	Bridges at the time were designed as simple structures in reinforced concrete. The top of the T formed the deck of the bridge. The larger spans were designed by the experienced bridge engineers and were mainly steel girders with concrete decks and steel trusses. Inexperienced engineers were not permitted to attempt that design. Left the section after eighteen months for an appointment at Port Macquarie.	Bridge design Port Macquarie
395	At that time the State was divided into areas called Divisions and the main office was called the Divisional Office. Initially went to the Newcastle divisional office which operated the Port Macquarie office. After a few months moved to Port Macquarie as Assistant Engineer to the officer in charge. A few months later was appointed officer in charge and remained at Port Macquarie for four years	Newcastle Port Macquarie
427	End of Tape IEA SYD: FH45 Side A	

Tape: IEA SYD: FH45 Side B

000	Start of Tape IEA SYD: FH45 Side B	
002	Talks about working at Port Macquarie in 1948. Stayed at Mrs Brown's Guest House for Young Gentlemen with bank clerks, engineers and the local dentist, also a bachelor. The house, now demolished, had been the original residence of the Governor.	Port Macquarie in 1948 Mrs Brown's Guest House for Young Gentlemen
031	Appointed officer in charge of Port Macquarie Divisional Office in 1950. A rapid rise in his career but not unusual at the time . Felt a huge responsibility with 300 men on staff in works gangs and about six foremen and administration staff. Was given an assistant Hedley Dearden and typist Marj McLaren. Port Macquarie Council did not have an engineer on staff, so Pearson was instructed by DMR to act in an honorary capacity as council engineer. Found the work interesting, though his two jobs were entirely different.	1950 Officer in charge, Port Macquarie Div. Office Hedley Dearden Marj McLaren
059	Says the Port Macquarie office was mainly a maintenance office but was also charged with reconstructing the Pacific Highway between Moorland and Johns River and at Herons Creek to reconstruct the highway to the standard of forty miles per hour. The highway was gravel. The alignment was that of the present Bucketts Way. The Highway was to be sealed between Taree and Port Macquarie. The ferry crossing at Blackmans Point was eventually replaced by a bridge named after Dennis, a bridge engineer.	Reconstruction of the Pacific Highway Moorland Johns River Herons Creek Taree Kempsey Blackmans Point Dennis Bridge
090	The Port Macquarie office area extended along the Oxley Highway to Walcha, westwards from Port Macquarie through Wauchope and northwards to north of Nambucca. The office maintained several ferries and a slipway at Port Macquarie at Hibbard, where ferries could be slipped. Assisted those councils without facilities with ferry maintenance. Ferry crossings slowed traffic.	DMR area around Port Macquarie. Ferry crossings Nambucca Walcha Hibbard Wauchope

103	Operation and maintenance of ferries a nuisance as opposed to concrete bridges, which required negligible maintenance. At Port Macquarie the traffic was light and ferry drivers found monotony a problem. Some drank and the nightshift was a problem as operators fell asleep. Pat Tuhoy, the local constable once reported to Pearson a problem at Blackmans Crossing where the operator was holding the ferry some distance from the bank and inviting car drivers to jump across the gap. The constable could not arrest the operator as he was in charge of his vessel at sea, so Pearson enticed the operator to the bank where he was arrested. During floods ferries were lost. Maclean Council ran several ferries and in the 1949/1950 floods lost three out to sea. Port Macquarie lost the Smithtown ferry and another lower down the Macleay River.	Ferries Drinking problems Pat Tuhoy, local constable, Blackmans Point Floods
172	The 1949 and especially 1950 floods were a great worry. Completely lost a section of the Pacific Highway south of Port Macquarie in the reconstruction section of the Herons Creek area. Pearson instructed the foreman to cut down saplings which were lashed together over a couple of hundred metres of highway and placed a gravel pavement on a floating raft to rebuild the road and let traffic through.	1949/1950 floods Herons Creek Saplings used
200	Typical day would be a mixture of construction and maintenance activities. Acted as the surveyor for the construction organisation. Equipment included only bulldozers, powered graders and powered rollers which were in short supply throughout the state. Did not have enough rolling equipment to consolidate the pavement as it went down, so it was done by the traffic which resulted in complaints. The commissioner came up from Sydney to investigate and equipment arrived shortly thereafter. However, there continued to be constant equipment shortages.	Typical day - construction challenges: Equipment and shortages

258	Commissioner at that time was Toyer and Sherrard was the assistant commissioner. Pearson worked under all but two of the eight or ten commissioners who headed the DMR from its inception in 1926 until the demise of the Department. During this time the commissioner was not as much of a political appointment as nowadays.	DMR Commissioners: Alfred Toyer, DMR Commissioner
282	Pearson prepared the annual maintenance and construction program. Often changes had to be made as priorities changed and additional funds obtained due to unpredictable circumstances. Office and workshop facilities were being expanded as required and approvals had to be sought.	Typical day - maintenance
336	Says that in 1953 he had reached a level of seniority that required transfer to a divisional office for experience as a district engineer. Worked at Deniliquin. The pavement material for roads was 'prior stream material'. District engineer supervised councils with their grants for road and bridge construction and maintained regulations relating to work standards and preparation of annual programs relating to new grants. These funds were spent on state highways, trunk roads and main roads. Additional funds were available for developmental works in all areas. Was still a bachelor. Stayed at Deniliquin for two years.	1953 left Port Macquarie for Deniliquin
389	Went to the UK with a engineering friend. Had a letter of introduction to a well known firm of consulting engineers, Scott and Wilson, Kirkpatrick and Partners and obtained work. Was appointed to the Federation of Rhodesia where the English government were investing in road and bridge work. His contract for less than two years. Commenced the design of concrete bridges and supervised construction by contract.	UK Scott and Wilson Kirkpatrick and Partners
425	Met future wife on the ship to the UK. Proposed to her from Africa and decided to marry in Australia when his contract was up.	Marriage
451	Tape IEA Sydney FH45 Side B – ends	

Tape: IEA SYD: FH46 Side A

000	Tape IEA Sydney FH46 Side A begins	
007	Talks about being in Africa as a young man. A man could expect to have about six servants to drive, clean, cook, shop etc. Admired the English system of justice. Occasionally accompanied English district commissioner Peter Swan on his rounds as judge and jury regarding tribal disputes. Admired Swans tolerance, patience and wisdom in administering justice to the natives. Introduced Pearson to his evening drink of gin and coca cola. Went on safaris together taking forty of Swan's servants, one of which carried a bath on his head. Photographed elephants. Camped in game parks and mostly viewed game. Shot a leopard and brought the skin back to Australia. A highlight was seeing the Victoria Falls. Tells a story about the engineer who designed the steel arch bridge which crosses the Falls and committed suicide by jumping in when he discovered the two halves which had been built vertically were lowered to join the centre and failed to meet. This was due to day/night temperature variations. Subsequently the halves met. A true story.	Africa Peter Swan Name of Engineer who designed bridge over Victoria Falls
076	Tells a story about an engineer who designed the Yarrawonga bridge across the Murray River. He committed suicide when a level difference of about one foot in the two halves was discovered as the bridge neared completion. He had made an error in his initial survey work. The mistake is still apparent.	Yarrawonga Bridge
088	Worked in Africa with Englishman Jack Parker who had been seen out by consultants Scott and Wilson to commence bridge designs. Parker was a leading hurdler and it was just prior to the 1956 Olympic Games. Each evening Pearson would set out his hurdles at the local club oval and time him. They became great mates. Parker was selected for the Melbourne Olympics.	Jack Parker

106	Returned to Australia and his fiancée prepared for their wedding in Melbourne. Had a local government qualification and deliberated whether to use that or whether to reapply with the DMR. Phoned a senior DMR engineer who advised a position was available immediately.	Returned to Australia
115	Returned to the bridge section and worked with design engineer Bert Taylor, now the principal of Taylor and Herbert Consulting Engineers. They worked on a project designing a new roadway for lanes seven and eight of the Sydney Harbour Bridge, replacing tram traffic. Was appointed to remove the tram tracks and construct the roadway, approach ramps and road pavements within 12 months to fulfil a political promise made by the commissioner to the government. At that time the Department had nearly completed its first pre-stressed concrete bridge at Bobbin Head. Says he was inexperienced in pre-stressed concrete bridge design and had to become an overnight expert. Finished the designs which were checked by Taylor. Married within two months.	Return to DMR bridge section. Bert Taylor, Taylor & Herbert Consulting Engineers Sydney Harbour Bridge roadway reconstruction Pre-stressed concrete bridge designs Bobbin Head bridge
145	Tendered on the Bert Taylor design for the traffic lanes, a series of pre cast concrete components which fitted together like meccano to form two lanes of roadway on the existing steel structure of the bridge. An alternative tender was produced by E S Clementson. Their design was based on hundreds of jack arches which ran laterally across the bridge. Each arch was supported on a pre-cast concrete beam which sat on the steel components of the bridge. An asbestos form in arch format was then to span between pairs of beams and concrete placed on top of the form with a mesh of welded steel for the reinforcement. A simple design which was checked by the bridge section who agreed it would work. The tender was accepted – the price about one million pounds. Pearson supervised the night work, get the day work done and cope with his new bride.	Tenders for reconstruction of Sydney Harbour Bridge seven and eight. E.S. Clementson

176	The first time concrete went into the asbestos forms it went straight through and onto boats below. Thought the needle vibrators were breaking the forms. Actually the asbestos sheeting was straight off the manufacturers presses and so did not have time to harden and gain strength. Had to be careful with vibrating equipment and could not place concrete in heaps as it was too much of a load on the form. Achieved the twelve month deadline with a day to spare. This design was unique in Australia although had been used often in Britain.	Problems with Sydney Harbour Bridge reconstruction work.
225	Was then placed in charge of construction of all the major Sydney bridges planned over the next five years. The bridges replaced iron structures at Figtree and Gladesville Bridge. Captain Cook Bridge was a new one to augment Tom Ugly's Bridge. Began with a new DMR design for Gladesville Bridge – a steel cantilever design initially favoured for the Harbour Bridge. An alternative and cheaper tender came from English firm Reed and Mellik under the name of Sydney Building firm Stewart Brothers and Partner – the partner was Reid and Mellik. The tender was prepared for them by Maunsell, Consultants in England and was a concrete arch bridge. The bridge comprised four arches of the voussoir arch – a block arch. The £2.5 million tender was accepted by the DMR and the final cost of the Gladesville Bridge was about £3.5 million. It was the largest arch in the world and its uniqueness concerned the DMR who had the design was checked by Professor Roderick at Sydney University	Sydney Bridges: Gladesville Bridge Captain Cook Bridge Tom Ugly's Bridge Reed and Mellik Maunsell
289	The contract was accepted on "the green book design" – a book of incomplete drawings with more detail required. Sydney University could not check the design until eventually more plans were supplied. They said the arch needed continuous reinforcement as an extra safety factor. The consultants proposed putting pre-stressed cables between each pair of the four arch ribs as an anti buckling device.	Design of Gladesville Bridge checked by Sydney University

319	Gladesville Bridge construction commenced behind time. However, the construction was well executed by the contractor's excellent team of engineers led by a Mr Baker-James. The bridge was completed and the variation agreed to. Then the contractor sued the Department for additional payments. The case went before an arbitrator and Pearson, bridge engineer Frank Cook and Assistant Metropolitan Engineer (later commissioner) Pat Schmidt represented the Department. The Department won on nine of the ten points that were being contested.	Construction of the Gladesville Bridge Arbitration. Mr Baker-James Frank Cook, Bridge Engineer Pat Schmidt
351	Pearson says he is happy with the bridge design although it has been criticised for architectural features relating to the top of the piers where the headstocks are visible and supporting the deck. Early on the Department decided to widen the bridge from the northern end from six to ten lanes. This delayed the project and was partly responsible for a final price increase of one million pounds.	Criticisms of Gladesville Bridge
376	An associated project at the time was the Tarban Creek Bridge, a portal frame and the Huntley's Point overpass. The overpass was concreted in place by a patented method involving putting the aggregate in the forms first and then grouting those stones. At the start of the pre-stressed concrete era DMR were trying to achieve a minimum strength of six thousand pound per square inch. Up till then had worked at about three thousand pound per square inch and so this was a giant leap forward in concrete strength.	Tarban Creek Bridge Taren Point Bridge and Huntley's Point overpass
400	Materials and research engineer Alan Leask developed mixes for the big bridges, particularly for the abutments of Gladesville Bridge which were cast in rock and required a six thousand pound per square inch concrete with an aggregate size of two to three inches. The Gladesville Bridge was the largest concrete arch bridge in the world, at that time spanning one thousand feet between springings. Was subsequently exceeded by a Yugoslav bridge.	Alan Leask Development of new mixes
430	Tape IEA Sydney FH46 Side A - Ends	

Tape: IEA SYD: FH46 Side B

000	Start of Tape IEA Sydney FH46 Side B	
004	Talks about the manufacture of the concrete blocks which form the arch for the Gladesville Bridge. They were made in forms set up at Greenwich downstream from the bridge and were floated up. Their concrete strength was tested by cylinders of concrete. One block failed testing but was already in the arch. The DMR decided to sample the concrete. Cliff Robertson was the designing engineer for bridges at the time and performed tests with the Smith hammer. Laboratory tests revealed it was the strongest concrete in the bridge. The Smith hammer has not been used by the Department since.	Gladesville Bridge – manufacture of the concrete blocks and testing Smith hammer
040	Went on to build the Captain Cook Bridge and the Roseville Bridge, both designed in-house by Albert Fried, the Figtree Bridge and others – about two dozen during his time at the Metropolitan Bridges - mostly of major size. On completion of these bridges he was transferred to Bega for twelve months. However just prior to leaving he was asked to look after the Cahill Expressway extension. He was to liaise with the constructors and agree to the design which was based on open cut construction and involved a tunnel under the Botanic Gardens.	Captain Cook, Roseville, Figtree bridges Albert Fried Cahill Expressway extension
066	Discusses his time at Bega and his involvement in bridge work and council. Involved in the construction of twelve bridges.	Bega
071	Moved to the Bridge Section which at the time was responsible for the design, construction and maintenance of all state road bridges. He looked after design for the northern half of New South Wales. Was then appointed Bridge Operations Engineer, a position which he held for a several years, looking after construction and maintenance of bridges. Was then appointed Chief Engineer, Bridges with overall responsibility for bridge design work, construction, maintenance and ferries.	Bridge section Career moves – Bridge Operations Engineer, Chief Engineer, Bridges.

086	An inheritance from Public Works (ie pre 1926) was that bridges were mainly constructed by contract. Excellent contract documents dating back to last century prevailed in contract bridge construction until 1980, when documents were modernised.	Contract construction
099	Discusses reasons for the number of bridges constructed during this period being due to inadequate width and loading capacity, ie structural design of existing bridges. Old two lane bridges of sixteen feet (five metres) wide which were designed to enable two horses and carts to pass were inadequate for two trucks. The width between kerbs was standardised and increased rapidly – is today 9.2 metres.	Need for implementation of a large metropolitan bridge building program
139	Following the completion of the metropolitan bridges the DMR began building freeways which required a lot of bridges at intersections and over rivers. A great strain on the bridge section to keep up with requirements of design and construction. Between the 1960s and 1980s, 130 bridges per year were built and design consultants and construction contractors were relied upon increasingly. Bridge Section paid careful attention to fairness in regard to contracts and had a reputation for good administration. Subsequent to Pearson's time the section lost responsibility for bridge construction and maintenance. Contract administration passed to divisional engineers and the legal section - a matter of regret to Pearson.	Freeway construction Changes in administration of the Bridge Section

185	Pearson's view at the time was that the Bridge Section engineers should be regarded as the foremost design group in the world. He kept up with progress in design and says progress is a measure of economy. Progressed from beam and concrete deck designs being used in 1938 to post tension box girder designs, the first of which was built across the Parramatta River at Silverwater That bridge was built in segments but later got into strife with the box girder design, due to of lack of knowledge about the anchorage of cables. Some in blocks failed. With the help of the German firm Leonhardt they developed the method of incrementally launching box girder bridges – that design was used on the Taree bypass. The incrementally launched bridge has a maximum span limit of fifty metres and then becomes uneconomical to expand.	Bridge designs Incrementally launched bridge Parramatta River Silverwater Leonhardt
238	The balanced cantilever bridge, for example the Pheasants Nest bridge, come into their own. Pearson undertook this design which was the first design for the Glebe Island (Anzac) Bridge.	Balanced cantilever design Pheasants Nest Bridge
252	Discusses height criticisms of the new Anzac) Bridge) and says the great height of the bridge means less restriction on future use of the waterway at Black Wattle Bay. The Maritime Services Board fixes the clearance heights of bridges on the Sydney Harbour, as did so in the case of that bridge. The new roads Act of 1993 describes bridges as an obstruction to navigation.	The Anzac Bridge
288	Discusses the first slender foot bridge which was built at Huntley's Point. Says bridges are designed as monuments which may be in place for two hundred years and should be elegant. To encourage that concept he produced a book called "The Aesthetics of Bridges" for use by RTA designers and consultants which won a Concrete Institute Award. He was recently one of only four people worldwide to be asked to submit a paper on bridge appearance to a Washington conference – a prestigious meeting of the American Transport Authorities.	Huntley's Point slender foot bridge Book "The Aesthetics of Bridges"

316	Talks about problems with the construction of the Mooney Bridge, the third balanced cantilever design the Department had built. Pearson tried and failed to get permission to have the deck level lifted by ten metres to save on the rock cuttings at both ends and improve the grade. It was the sixth largest of its design in the world – the largest being the Gateway Bridge in Brisbane. When nearing completion, the northern half began to swing on its abutment bearings. This happened quickly and was temporarily restrained. However, the restraint broke and total collapse was avoided by a quick-thinking contractor who attached a rope to the abutment end of the bridge.	Mooney Mooney Bridge. Gateway Bridge, Brisbane Accident in construction of Mooney Mooney Bridge
386	Says there were a number of failures of end block anchorages on box girder bridges. They were not serious and were fixed by an increase in reinforcement content around the anchorage. This occurred on the new bridge at Hexham, the Urungah bridge and one or two others. There was a disappointing reaction to a balanced cantilever bridge built on the southern freeway near the mining area of Camden. It was designed in two halves with a central joint between the two pairs, keeping in mind further possible mining development and future needs of the bridge.	Failures/ disappointments. Hexham Bridge Urungah Bridge
429	End of Tape IEA Sydney FH46 Side B	

Tape: IEA SYD: FH47 Side A

000	Start of Tape IEA Sydney FH47 Side A	
007	Talks about 'creeping concrete' problems on the Pheasants Nest Bridge on the Nepean River and how these were overcome. At the time maximum design stresses used were equal to forty percent of failure stresses. Did not know enough about the phenomenon of creeping concrete to understand the percentage was too high for a cantilever. Received English advice that the design should have been limited to a maximum twenty percent. Was a state representative for ten years on the Structures Committee of the Road Research Board based in Melbourne and comprised all the state road authorities. After this bridge experience he insisted money be granted for university research into the "creep" effect.	Problems with the Pheasant's Nest Bridge. Structures Committee of the Road Research Board
043	Was sent to Japan to study tunnels and bridges. At that time had been investigating the possibility of a Sydney Harbour tunnel. Limits had been placed on the gradient which could be applied to a tunnel road approach. An entry point was required at Crows Nest and the exit would have been a long way from the Opera House, so it became uneconomical. Then prepared a Sydney Harbour bridge crossing proposal which considered a bridge from Long Nose Point at Balmain to Greenwich. It would have linked into the Glebe Island complex, allowing north – south traffic to bypass Sydney. Objections were raised to any work in the Balmain area due to influential residents on the Peninsula - the proposal was abandoned and the tunnel was built.	Japan Sydney Harbour crossing possibilities investigated Long Nose Point

062	Had no input to the Sydney Harbour Tunnel project which came at the end of his career. A cable stayed bridge was proposed to cross from Bedlam Point on the Parramatta River to join the Great North Road at Five Dock, the original punt crossing in the colony's early days. It was envisaged that the bridge would relieve traffic on the Gladesville Bridge and take all the right hand turners from the city side of Gladesville Bridge, which carries a large traffic load, and is vulnerable to accidents that can cause traffic build up in the heart of Sydney. Due to lack of funds the proposal did not get off the ground.	Proposed Bedlam Point bridge
092	Regrets that neither the Balmain bridge nor the Bedlam Point bridge project proceeded and feels they will be needed in future, due to increasing traffic. A scheme was prepared by Albert Fried for a bridge at Middle Harbour to take traffic from the Roseville and Spit Bridges. It would have gone from Castlecrag, but met with strong local objections. A scheme was also prepared for replacing the Spit Bridge with a higher level bridge. Neither proposal went ahead.	Regrets. Middle Harbour bridge and replacement Spit Bridge proposals.
122	Says that about six schemes would be considered before deciding on a final bridge design. The final design would be based on the most economical scheme.	Final design considerations.
133	Talks about difficulties in building bridges. Determining the best foundation type is always a problem at the design stage. A geotechnical survey can determine the type of foundation required and that determines the span lengths. Sometimes had problems with piles not meeting enough resistance. One of the piers of the [steel truss] Hawkesbury bridge built in 1945 is the deepest in the world. It created enormous problems for the contractor when it just kept on going.	Foundations

174	Talks about the excellence of the DMR as an organisation. A great sense of comradeship and senior staff regarded it their duty to help juniors. From a technical point of view the elaborate procedures for checking work were very well done and provided a safety valve.	DMR organisation
223	Comments on the difference between bridge building in NSW and other states. Says that the DMR Bridge Section in NSW developed a strong sense of communication through their teams and regular meetings were held with contractors at all levels. The DMR in NSW supplied their own hand picked staff to supervise all bridge work. In Victoria, the Country Roads Board had engaged outsiders to supervise work on their bridges, some of which subsequently collapsed. Felt that the Victorian Country Roads Board had lost touch with field activities in both the Kings Bridge and Westgate Bridge projects.	Bridge collapses in Victoria
258	Talks about political considerations. Pearson was named in parliament in relation to the engagement of an overseas firm of consulting engineers. A politician in whose electorate the proposed bridge was being built complained in parliament that that the DMR bridge engineer had ignored the qualities of local consultants. The Minister for Roads defended Pearson saying local consultants had no experience of the design proposed. In another case, an in-house bridge design went to tender and was won by a private firm. However, the bridge took longer to finish than anticipated and Pearson was reprimanded by the commissioner. Says that in every electorate contained a bridge which the elected member would want replaced to assist in re-election prospects.	Politics Priorities

353	Says that his favourite bridge is over the Wilson River at Telegraph Point. It was designed in-house by Brian Fredericks and is a development of the box girder bridge in the form of a spine beam – a single box with sloping side and very elegant. It has about nineteen equal spans and is quite long. It was built on falsework in segmental box format by the late Tony Pearson, a DMR contractor. Says most contractors had a personal love of bridges. An architect friend recently said that on the way up north he enjoyed an hour under the bridge admiring its line and drinking a bottle of Logan's Chardonnay.	Favourite bridge Contractor Tony Pearson
404	End of IEA Sydney FH47 – Side A	

Tape: IEA SYD: FH47 Side B

000	Start of IEA Sydney FH47 – Side B	
006	Discusses the development of a cast-in-place concrete bridge, post tension, which had a socket of curved profile so a section of the bridge looked like a banana, so it was promptly dubbed the "Banana Bridge". The bridge was used at sites which spanned an important, busy road and where an elegant structure was required. In memory of this design, staff presented him with a cast mounted banana shape on a plaque at his retirement.	Bridge development Cast-in-place concrete bridge design.
027	Talks about poor bridge design and says that the worst bridge came from a consultant's design for a foot bridge in the metropolitan area as a great slab of concrete. During his years on the NAASRA Bridge Committee, Pearson developed a trough girders design which became a NAASRA bridge standard. The design was used on two bridges on the on the north coast. The sites were unsuitable and the bridge does not have sufficient flood clearance.	Worst bridge designs NAASRA Bridge Committee
087	Voluntarily retired at age 60 as DMR Chief Engineer Bridges, a post he held for about ten years until the late 1980s. Since then he has worked for a consultant company, Technical Assessing, doing some bridge work and acting as a bridge expert for the legal profession and insurance companies. Says the most enjoyable period of his life was at Port Macquarie.	Post retirement. Happiest career time period.
182	Is currently writing a book for USA consumption on the design and construction of incremental bridges with Bernhard Goehler of Leonhardt . Several have been built in NSW – the Taree Bypass bridges, Bathurst twin bridges, Tweed Heads among others. Has an interest in motor vehicles and will be exhibiting his rare turbo charged CX Citroen in a car club exhibition in August 1999. His interested in Citroens began when he owned one in Africa. Has owned a string of Jaguars.	Hobbies, spare time Incremental bridge construction Bernhard Goehler of Leonhardt . Taree

248	Has four children – three boys and a girl – a pharmacist, an architect, a mechanical engineer (PhD) and an accountant. Works most days and often writes reports on the weekend.	Personal life
279	Says in his current role he determines the cause of failures in structure – often a design failure. Legal firms and insurance companies refer the matters to him. Bridge cases usually involve damage caused due to impact or even fire.	Current role
305	Discusses those NSW bridges which are a cause for concern and mentions timber bridges. Is a member of a Heritage Committee put together by the RTA and activity includes examining the remaining sixty or seventy timber truss bridges in the state. Timber beam bridges are being examined and are cause for concern. Says he worries a little about the modern pre-stressed concrete bridge. During construction cables are protected inside ducts by protective fluid, bonded around the cable and removing air. In theory, cables should last indefinitely. Overseas bridge cables have been opened and found to be corroded. Feels confident in regard to driven pile foundations, as design methods were conservative. Questions the longevity of steel bottom end piles where the steel end is embedded in the ground and the concrete section is above ground and submerged. Comments that safety record is for bridges is a good one in NSW, although the Sydney Harbour Bridge construction resulted in some fatalities.	Cause for concern – timber bridges, pre-stress concrete bridges Foundations
382	Says that bridge construction improvements are always possible. Regrets that some of his proposals were not implemented: Sydney Harbour crossings, the Middle Harbour crossing and the Hastings River crossing at Port Macquarie, replacing two ferries. Grants to replace ferries dried up before the bridge could be built.	Regrets – Sydney Harbour crossing, Middle Harbour, Hastings River crossing proposals
407	End of Tape IEA Sydney FH47- Side B	

Tape: IEA SYD: FH48 Side A

000	Start of Tape IEA Sydney FH48 – Side A	
004	Discusses achievements and advances in bridge design. When he joined the DMR in 1948 the Hardy Cross Moment Distribution method was used for analysis of structures. This gave the stresses in the members and then the engineers could outline the members sizes and the reinforcement required. Draughtsmen would then prepare drawings of the full members and the bridge and they would be traced by lady tracers. The final result was a set of high standard of bridge design drawings. In the late 1960s the bridge section received its first computer which was installed in a special air conditioned room and was widely used for calculations by section engineers. It became so popular that staff could not get access to it. Individual computers were eventually purchased for the engineers. The CAD system (computer aided drafting) was introduced, alongside the design computer enabling draftsmen to produce high standard drawings more rapidly than by hand, as previously done. The process eliminated the tracers. Programs have been developed in Australia and overseas which have been valuable to designers in structural analysis.	Design advances and achievement. Computers

045	Discusses advances in bridge construction techniques. The biggest advancement for medium span bridges was the elimination of falsework with the introduction of the incremental launched bridge. For longer span bridges the cable stay design is now the most economical. Spans between fifty metres in the incremental bridge and two hundred metres in the cable stayed bridge can catered for by the balanced cantilever bridge which requires a minimum of falsework. The incremental bridge is virtually uncrackable and contains a huge amount of pre-stressed concrete.	Advances in construction techniques.
078	Says that he was a bridge engineer during a very interesting period of bridge development. Was responsible for the design and construction of seven hundred bridges, many of which he has not seen.	Seven hundred bridges
089	End of oral history interview with Brian Pearson Tape IEA SYD: FH48 Side A ends	